

REMARKS

Reconsideration of the application identified in caption, pursuant to and consistent with 37 C.F.R. §1.111 and in light of the remarks which follow, is respectfully requested.

Claims 1-3 and 11 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,920,879 (*Segal et al.*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 1 is directed to a multilayer structure comprising at least one internal layer and an external layer, wherein the external layer is the outermost layer of the multilayer structure, wherein at least the internal layer is formed from a composition comprising at least one thermoplastic polyamide and at least one impact-resistance modifier present at a concentration by weight of between 10 and 50% of said composition, and in that at least the external layer is formed from a composition comprising as a polymer matrix a polyamide composition comprising:

(i) a polyamide thermoplastic copolymer obtained by copolymerization of ϵ -caprolactam with at least one of the monomers comprising: an amino acid comprising at least 9 carbon atoms, or a corresponding lactam; or a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms,

the ratio by weight between the ϵ -caprolactam and the total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam being between 4 and 9, or

(ii) a mixture of at least said thermoplastic polyamide copolymer (i) and at least one second thermoplastic polyamide or copolyamide obtained by polymerization of monomers comprising fewer than 9 carbon atoms, the content by weight of the second thermoplastic polyamide or copolyamide in the polymer matrix being between 0 and 80% by weight.

Segal et al relates to a composite sheet consisting essentially of relatively low molecular weight polyamides which are reinforced with long glass fibers with or without additional particulate filler (col. 1, lines 8-12). *Segal et al* discloses that glass fiber-filled thermoplastic sheets of the invention are prepared from semicrystalline thermoplastic polyamide polymers (col. 5, lines 31-33). *Segal et al* also discloses an extensive list of various monomers at column 5, lines 42 to column 6, line 2.

Segal et al does not disclose each feature recited in claim 1, and as such fails to constitute an anticipation of such claim. For example, *Segal et al* fails to disclose an outermost external layer formed from a composition comprising as a polymer matrix a polyamide composition comprising: a polyamide thermoplastic copolymer obtained by copolymerization of ε-caprolactam with at least one of the monomers comprising: an amino acid comprising at least 9 carbon atoms, or a corresponding lactam; or a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms, as recited in claim 1.

As discussed above, *Segal et al* discloses an extensive list of monomers at column 5, lines 42 to column 6, line 2. Clearly, such extensive list of monomers does not constitute an "anticipation" of the recited materials that are copolymerized to obtain the recited polyamide thermoplastic copolymer. That is, *Segal et al* fails to clearly and unequivocally disclose the recited materials that are copolymerized to obtain the recited polyamide thermoplastic copolymer, without any need for picking and choosing from a laundry list of disclosures. See In re Arkley, 172 USPQ 524 (CCPA 1972). Indeed, there is no specific or working example in *Segal et al* which employs the materials that are copolymerized to obtain the polyamide thermoplastic copolymer recited in claim 1.

Furthermore, *Segal et al* fails to disclose that the ratio by weight between the ϵ -caprolactam and the total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam is between 4 and 9, as recited in claim 1. In fact, *Segal et al* fails to disclose any ratio between the ϵ -caprolactam and a total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam, let alone the recited ratio of between 4 and 9.

In view of the above, it is therefore apparent that *Segal et al* fails to constitute an anticipation of claim 1. Accordingly, withdrawal of the above §102(b) rejection is respectfully requested.

It is further submitted that absent an improper resort to Applicants' own disclosure, one of ordinary skill in the art would not have been motivated to modify *Segal et al* by employing the recited materials which are copolymerized to obtain the polyamide thermoplastic copolymer recited in claim 1. As discussed above, *Segal et al* merely discloses an extensive list of monomers without any suggestion or guidance for selecting the recited materials which are copolymerized to obtain the recited polyamide thermoplastic copolymer. Clearly, *Segal et al*'s mere disclosure of such extensive list of monomers would not have motivated one of ordinary skill in the art to employ the recited polyamide thermoplastic copolymer obtained by copolymerization without an improper reliance on Applicants' own disclosure.

Furthermore, *Segal et al* has no disclosure or suggestion of the ratio by weight between the ϵ -caprolactam and the total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam being between 4 and 9, as recited in claim 1. In this regard, Applicants submit that employing the claimed ratio can, for example, result in a

material having improved resistance to stress cracking.¹ By comparison, *Segal et al* has no mention or suggestion of the ratio by weight between ϵ -caprolactam and a total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam, let alone that such ratio can be a result-effective variable of the stress cracking resistance characteristic of the material. As such, it is apparent that one of ordinary skill in the art would not have been motivated to modify *Segal et al* by employing the claimed ratio.

Claims 4-9, 19-21 and 23-25 stand rejected under 35 U.S.C. §103(a) as being obvious over *Segal et al* in view of U.S. Patent No. 5,219,003 (*Kerschbaumer*). Claim 10 stands rejected under 35 U.S.C. §103(a) as being obvious over *Segal et al* in view of U.S. Patent No. 5,256,460 (*Yu*). Claims 12 and 14-18 stand rejected under 35 U.S.C. §103(a) as being obvious over *Segal et al* in view of *Kerschbaumer* and further in view of European Patent Document No. 0 646 627 (EP '627). Claim 13 stands rejected under 35 U.S.C. §103(a) as being obvious over *Segal et al* in view of *Kerschbaumer* and further in view of U.S. Patent No. 5,357,030 (*VanBuskirk et al*). Claim 22 stands rejected under 35 U.S.C. §103(a) as being obvious over *Segal et al* in view of *Kerschbaumer* and further in view of *Yu*. Withdrawal of the above rejections is respectfully requested for at least the following reasons.

As discussed above, *Segal et al* does not disclose or suggest an outermost external layer formed from a composition comprising as a polymer matrix a polyamide composition comprising: a polyamide thermoplastic copolymer obtained by copolymerization of ϵ -caprolactam with at least one of the monomers comprising: an amino acid comprising at least 9 carbon atoms, or a corresponding lactam; or a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms, the ratio by weight between the ϵ -caprolactam and

¹ For example, according to one aspect defined by dependent claim 26, the stress cracking resistance of the structure measured in a $ZnCl_2$ solution according to international standard SAE J 844 can be greater than 500 hours.

the total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam being between 4 and 9, as recited in claim 1.

The Patent Office has relied on *Kerschbaumer* for disclosing a multilayer structure comprising polyamide in a pipe, and the use of a plasticizer (Official Action at page 4). The Patent Office has relied on *Yu* for disclosing a structure for an automobile component comprising nylon 6/6-36 (Official Action at page 5). *EP '627* has been relied on for disclosing an acid-modified ultra low density polyethylene which is used as an impact modifier of polyamide (Official Action at page 6). *VanBuskirk et al* has been relied on for disclosing the addition of a chain extender to polyamide 6 for the purpose of improving the physical characteristics of the polyamide 6 (Official Action at page 7).

The above secondary applied documents fail to cure the above-described deficiencies of *Segal et al.* For example, without addressing the propriety of the Examiner's comments concerning the above documents, Applicants note that such documents fail to disclose or suggest an outermost external layer formed from a composition comprising as a polymer matrix a polyamide composition comprising: a polyamide thermoplastic copolymer obtained by copolymerization of ϵ -caprolactam with at least one of the monomers comprising: an amino acid comprising at least 9 carbon atoms, or a corresponding lactam; or a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms, the ratio by weight between the ϵ -caprolactam and the total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam being between 4 and 9, as recited in claim 1.

Furthermore, Applicants note that *Segal et al* is related to a glass fiber-filled thermoplastic sheet and discloses using the composition thereof with a nonwoven glass mat (col. 5, lines 31-33, examples). In stark contrast, *Kerschbaumer* is related to a multi-layered fuel line for use in a motor vehicle (col. 1, lines 5-10). Clearly, one of ordinary skill in the art

would not have been motivated to combine *Segal et al* and *Kerschbaumer* in the manner suggested, in light of the different structures and purposes of the products disclosed therein.

For at least the above reasons, it is apparent that no *prima facie* case of obviousness has been established. Accordingly, withdrawal of the above §103(a) rejections is respectfully requested.

Claim 26 stands rejected under 35 U.S.C. §103(a) as being obvious over *Segal et al* in view of U.S. Patent No. 4,881,576 (*Kitami et al*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

The Patent Office has relied on *Kitami et al* for disclosing a gasoline hose having a stress cracking resistance of greater than 500 hours as measured in zinc chloride (Official Action at page 8).

Kitami et al does not cure the deficiencies of *Segal et al* discussed above. In this regard, without addressing the propriety of the Examiner's comments concerning *Kitami et al*, Applicants note that like *Segal et al*, *Kitami et al* fails to disclose or suggest an outermost external layer formed from a composition comprising as a polymer matrix a polyamide composition comprising: a polyamide thermoplastic copolymer obtained by copolymerization of ε-caprolactam with at least one of the monomers comprising: an amino acid comprising at least 9 carbon atoms, or a corresponding lactam; or a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms, the ratio by weight between the ε-caprolactam and the total amount of hexamethylenediamine and diacid and/or said amino acid or the corresponding lactam being between 4 and 9, as recited in claim 1. Accordingly, withdrawal of the above §103(a) rejection is respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

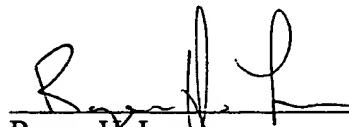
If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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